CLAIMS

1. (Canceled)

2. (Previously presented) Apparatus for joining a plurality of pieces of pipe, including:

a first piece of pipe and a second piece of pipe each having a similar size and shape sidewall corrugation pattern along their lengths;

a first female engagement structure formed from the sidewall corrugation pattern of the first piece of pipe; and

a male engagement structure formed from the sidewall corrugation pattern of the second piece of pipe,

the first female structure being temporarily deformed for receiving the male structure, the temporary deformation being both sufficiently large to permit the insertion of the male structure but also sufficiently small to ensure that material memory returns the first female structure toward its original non-deformed configuration with sufficient compressive force to grip the male structure and prevent its inadvertent removal from engagement with the first female structure, and

wherein the female structure includes an inwardly projecting engagement element at its leading edge acting between said first and said second pieces of pipe to increase the force necessary to disengage said pipe pieces from each other following assembly.

3. (Previously presented) The apparatus of Claim 2, in which said pipe sidewall corrugation pattern of each piece of pipe includes a corrugated exterior surface and an internal non-corrugated liner element.

4. (Canceled)

5. (Previously presented) The apparatus of Claim 2, in which said first piece of pipe includes a second female engagement structure remote from said first female structure, said second female structure also being temporarily deformed to function as a female structure for receiving a corresponding non-deformed end of a third piece of pipe, said third piece of pipe having a sidewall corrugation pattern along its length that is similar in size and shape to the sidewall corrugation pattern of said first and second pieces of pipe.

6. (Previously presented) The apparatus of Claim 2, including a sealing element positioned between confronting surfaces of said first and second pieces of pipe to help provide a watertight seal therebetween.

7. (Previously presented) The apparatus of Claim 2, including an adhesive material acting between confronting surfaces of said first and second pieces of pipe to bond said first and second pieces to each other upon insertion of said second piece into said female structure of said first piece of pipe.

8. – 34. (Canceled without prejudice)

35. – 42. (Canceled without prejudice)

Claim 43. (New) Apparatus for joining a plurality of pieces of pipe, including:

a first piece of pipe and a second piece of pipe each having a similar size and shape sidewall corrugation pattern along their lengths;

a first female engagement structure formed from the sidewall corrugation pattern of the first piece of pipe; and

a male engagement structure formed from the sidewall corrugation pattern of the second piece of pipe,

the first female structure being temporarily deformable to receive the male structure, the temporary deformation being both sufficiently large to permit the insertion of the male structure but also sufficiently small to ensure that material memory returns the first female structure toward its original non-deformed configuration with sufficient compressive force to grip the male structure and prevent its inadvertent removal from engagement with the first female structure, and

the female structure including an inwardly projecting engagement element at its leading edge acting between said first and said second pieces of pipe to increase the force necessary to disengage said pipe pieces from each other following assembly.

Claim 44. (New) Apparatus for joining a plurality of pieces of pipe, including:

a first piece of pipe and a second piece of pipe each having a similar size and shape sidewall corrugation pattern along their lengths, said corrugation including a generally repeating sinusoidal pattern in cross section having alternating portions (a) radially more distant from a longitudinal centerline of the pipe and (b) radially less distant from that centerline, with radially extending leg portions joining adjacent ones of said radially more distant portions and said radially less distant portions, the radially more distant portions and legs adjacent thereto forming rungs of the pipe, and the radially less distant portions forming valleys between pairs of adjacent rungs;

a male engagement structure formed from the sidewall corrugation pattern of the first piece of pipe, said male engagement structure terminating longitudinally at a location along the

corrugation pattern that is generally within the radially less distant portion of the corrugation pattern; and

a first female engagement structure formed from the sidewall corrugation pattern of the second piece of pipe, said female engagement structure terminating longitudinally with a generally open end formed from a partial rung for receiving the male engagement structure,

the first female structure being temporarily deformable to receiving the male structure, the temporary deformation being both sufficiently large to permit the insertion of the male structure but also sufficiently small to ensure that material memory returns the first female structure toward its original non-deformed configuration with sufficient compressive force to grip the male structure and help prevent its inadvertent removal from engagement with the first female structure.

Claim 45. (New) Apparatus for joining a plurality of pieces of pipe, including:

a first piece of pipe and a second piece of pipe each having a similar size and shape sidewall corrugation pattern along their lengths, and each including a generally longitudinal axis parallel to the flowpath through the respective pipe pieces;

the sidewall corrugation of each of said pipe pieces comprising a generally sinusoidal exterior surface such that, in section view along the length of the longitudinal axis, said exterior surface forms a generally sinusoidal pattern of alternating similarly-shaped and similarly-sized (a) rung elements and (b) valley portions; said valley portions generally spacing said rung elements from one another longitudinally with respect to the pipe piece's longitudinal axis; said rung elements generally formed in cross section by a central portion lying generally parallel to the valley portion and spaced radially outwardly therefrom, said central portion having in cross section first and

second opposing edges spaced longitudinally from each other along the longitudinal axis, said rung elements further generally formed in cross section by first and second leg portions, each leg portion respectively connecting the corresponding edge of the rung central portion to an adjacent valley;

a male engagement structure at one end of the second piece of pipe, said male structure formed from the sidewall corrugation pattern of the second piece of pipe,

a first female structure formed from the sidewall corrugation pattern of the first piece of pipe at one end of the pipe, said female flange comprising a portion of a rung including the rung's central portion, said female flange configured to receive the male engagement structure of the second pipe piece by being temporarily deformed for receiving the male structure, the temporary deformation being both sufficiently large to permit the insertion of the male structure but also sufficiently small to ensure that material memory returns the first female structure toward its original non-deformed configuration with sufficient compressive force to grip the male structure and prevent its inadvertent removal from engagement with the first female structure.

Claim 46. (New) (similar to Claim 43, but for the limitation ending in ", said termination occurring at a location along the corrugation pattern that is generally within the radially more distant portion of the corrugation pattern"): Apparatus for joining a plurality of pieces of pipe, including:

a first piece of pipe and a second piece of pipe each having a similar size and shape sidewall corrugation pattern along their lengths, said corrugation including a generally repeating sinusoidal pattern in cross section having alternating portions (a) radially more distant from a longitudinal centerline of the pipe and (b) radially less distant from that centerline, with radially

extending leg portions joining adjacent ones of said radially more distant portions and said radially less distant portions, the radially more distant portions and legs adjacent thereto forming rungs of the pipe, and the radially less distant portions forming valleys between pairs of adjacent rungs;

a male engagement structure formed from the sidewall corrugation pattern of the first piece of pipe, said male engagement structure terminating longitudinally at a location along the corrugation pattern that is generally within the radially less distant portion of the corrugation pattern; and

a first female engagement structure formed from the sidewall corrugation pattern of the second piece of pipe, said female engagement structure terminating longitudinally with a generally open end for receiving the male engagement structure, said termination occurring at a location along the corrugation pattern that is generally within the radially more distant portion of the corrugation pattern,

the first female structure being temporarily deformable to receiving the male structure, the temporary deformation being both sufficiently large to permit the insertion of the male structure but also sufficiently small to ensure that material memory returns the first female structure toward its original non-deformed configuration with sufficient compressive force to grip the male structure and help prevent its inadvertent removal from engagement with the first female structure.